SIGNIFICANCE OF DRUG USE IN THE AVIATION ENVIRONMENT

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Introduction

Commercial aviation has added a new dimension to everyday travel, and for most passengers it is a safe and efficient method of transport. For some patients, however, it means exposure to additional medical risks that may not be apparent to them or indeed to their doctors. Often, critically ill patients may need the speed of air travel to receive specialised treatment. There are, however, various considerations, both general and physiological, that must determine whether patients are fit to fly as farepaying passengers on civil airlines.

Specific environmental changes associated with ascert to altitude tend to occur during a flight and modern aircraft are not pressurised to the equivalent atmospheric pressure at sea level. This has two predisposing effects:

a) a reduction in the partial pressure of atmospheric Oxygen
b) the expansion of gases within enclosed body cavities

These may render an individual passenger susceptible to develop certain clinical manifestations during a flight. Moreover, patients may have certain underlying diseases, which may be clear contraindications to air travel.

Due to the heterogenous travelling population, the medical status of a passenger cannot be known in advance. In this respect, all airlines are required by civil aviation regulations to carry first aid kits on all flight. These kits are basic and contain bandages, splints, antiseptics and usually a few proprietary drugs, most commonly analgesics, decongestants and drugs against motion sickness. Portable Oxygen sets as well as emergency Oxygen supplies are also provided by the airline.

Flight personnel are not allowed to consume drugs in any form. Taking pharmaceutical preparations is generally not compatible with flight duty. Apart from the more potent drugs, even readily available cold remedies or allergy retardants are prohibited as they can produce harmful side effects which may impair their work performance. On the whole, the decision taken by a doctor to prescribe medication to aircrew must be based on sound clinical pharmacology applied with medical common sense and helped by a basic understanding of the aviation environment.

Methods

1. A comparative study was carried out to get an insight of the variety of the contents of First Aid Kits and other types of kits which are used by several major airlines abroad and that used by the national airline AirMalta. Special reference was given to the pharmaceutical preparations contained in these kits and their indications for use in the emergency treatment of an inflight illness.

2. A retrospective three year survey (November 1988 - October 1991) was conducted at AirMalta's Flight Services Department, Luqa International Airport, to access information from the Inflight Illness Reports File which contains forms which are duly filled by the flight attendant in charge whenever a passenger becomes ill during a flight. The aim of this survey was to get a more clear view of the frequency and types of inflight illnesses encountered on AirMalta's flights during the three year period, to identify the most prevalent underlying diseases of the travelling population predisposing to an inflight illness, and to assess the utilisation of pharmaceuticals in the management of an inflight illness.

Results

1. First Aid Kits Review

AirMalta utilises two types of First Aid Kits: the daily use "Purser's Kit" and the "Fixed" First Aid Kit, together with a supplementary medical Oxygen supply (portable cylinder) at a supply of 0.15 Litres per minute. The contents of the kits are very basic and contain a number of wound-management products, splints and antiseptics. The only drugs contained in these kits are two different types of analgesics, an anti-hypotensive and antidiarrhoeal tablets.

Other airlines provide more comprehensive kits, in that, the contents cater for a wider variety of inflight illnesses that may occur. In addition, a "Doctor's Kit" to be used only by a medical doctor has been introduced recently to manage more serious conditions. The latter contains a large number of prescription-only medicines together with medical equipment such as a stethoscope, a sphygmomanometer and in some cases more sophisticated items such as a defibrillator.

Information on the drugs contained in these kits is commonly provided in different languages, and the drug's usual dosage, the route of administration and its indication and contraindications for use, are available with the kits.

2. Retrospective Survey

During the three-year surveyed period, there were 152 inflight illness reports. Since the air carrier reports were heterogenous, the data available was scanned for overlapping medical symptoms, medical signs and even specific disease entities to permit an impression of the magnitude of certain categories of medical problems encountered (n=223).

Frequency of inflight illnesses: The frequency differs substantially, ranging from none to nine reports per month (an average of 4 cases per month). The incidence of an inflight illness occurring was found to be 1 out of every 25,000 travellers, both inbound and outbound.

Types of inflight illnesses: The most common presenting symptoms were neurological (38.1%) of which fainting was the most prevalent complaint. This was followed by respiratory-related complaints (17.5%) and non-specific psychological/physical (15.7%) problems. Cardiovascular manifestations represented 8.1% of the total number of categorised medical problems reported. These are not exclusive presentations, since a number of cases have been recorded as presenting with chest pain and shortness of breath, a not uncommon clinical combination that can be aetiologically associated with cardiac, pulmonary and even other organ diseases. Although the death of a passenger was reported, this was a case where the passenger was travelling in a critical condition, to receive medical treatment abroad.

Medical History of occurring illness: The majority of reports were accompanied by at least partial medical history, 77 reported inflight illnesses had a pre-existing condition that was directly or indirectly associated with the medical problem encountered during the flight, the most prevalent being cardiovascular (29 reports) and respiratory (22 reports) problems. The most common types of current medications were miscellaneous cardiac drugs and bronchodilators.

Utilisation of Medical Aid Supplies: In 80.3% of reported inflight illnesses, medical aid supplies were used. Of these, 55.3% required the administration of Oxygen and 25% required the administration of

pharmaceutical item or preparation. The latter included 13.2% reports of self medication, 9.2% utilisation of items from First Aid Kits on board and 2.6% were supplied by a doctor who was available on request from among the travelling passengers.

Medical Assistance available: The medical provider was documented as a doctor in 33 reported cases and as a registered nurse in 32 reports. On 13 occasions, both a doctor and a nurse offered assitance.

Outcome: On arriving at their destination, 68 passengers (n=152) required further medical assistance, 48 admitted to airport clinics and 20 were admitted to a hospital.

Conclusions

The objectives of First Aid are to sustain life, prevent a condition from worsening and promote recovery. During a flight the chance for a doctor to be present is minimal and therefore adequate First Aid is necessary. This depends mainly on the level of training of the flight attendants in First Aid, and an adequate First Aid Kit. The latter can be drawn from the survey, knowing the most frequent types of inflight illnesses encountered and the most common predisposing medical conditions which are likely to precipitate an illness. In this respect, the First Aid Kits currently used by AirMalta could be further enhanced by the addition of a nasal decongestant or an inhaled bronchodilator.

A patient-oriented approach can also be tried. Passengers should be made more aware of the medical hazards of air travel. This could be done via patient-education leaflets which will be available to the public through doctors, community pharmacists, travel agencies and the airline itself. These will serve as guidelines for the general public especially those with pre-existing medical problems who would like to travel by air.